17 March 2015
Revised, 3 March 2016

Ms. Tracy Zinn
T&B Planning, Inc.
17542 East 17th Street, Suite 100
Tustin, California 92780

Subject: Paleontological Resource and Monitoring Assessment, Moreno Valley Logistics Center Project, City of Moreno Valley, Riverside County, California (APNs 316-100-028, -030, -048, -051, and -052)

Dear Ms. Zinn:

Site Location: A paleontological resource assessment has been completed for the Moreno Valley Logistics Center Project located in the city of Moreno Valley, west of the Perris Reservoir and comprising much of the southwestern part of Section 30, Township 3 South, Range 3 West, San Bernardino Base and Meridian (U. S. Geological Survey 7.5-minute Sunnymead and Perris, California topographic quadrangle maps), Riverside County, California (Attachments 1 and 2). The approximately 86.5-acre property is comprised of five parcels (Assessor's Parcel Numbers [APNs] 316-100-028, -030, -048, -051, and -052) and is bounded to the north by Krameria Avenue and a vacant lot, to the east by Indian Street, to the south by a commercial property, and to the west by a commercial/industrial facility, Heacock Street, and the east side of March Air Force Base. The Perris Valley Storm Drain passes through the project site, but is not part of the project. The proposed project involves construction of two slab-on-grade buildings, truck parking areas, and a storm water detention basin.

Geology: Published geologic reports and maps of the project area and immediately surrounding areas include those of D. M. Morton, 2003 (Preliminary geologic map of the Perris 7.5' quadrangle, Riverside County, California), and D. M. Morton and J. C. Matti, 2001 (Preliminary geologic map of the Sunnymead 7.5' quadrangle, Riverside County, California). The maps indicate that the project site is underlain by lower Pleistocene (approximately 1.8 million to perhaps 200,000 to 300,000 year old) very old alluvial fan deposits ($Qvof_a$, shown in brown on Attachment 3). Nearby deposits include Holocene and upper Pleistocene (10,000 to perhaps 100,000 year old) young alluvial valley deposits (Qyv_{sa}, shown in yellow on Attachment 3), and young alluvial fan deposits (Qyf_a, shown in pale yellow on Attachment 3). The geotechnical report prepared for this project (R. G.

Trazo and J. A. Seminara, 2014) only identified alluvium to a depth of 30 feet below ground level, but did not comment on the age of the sediments (*i.e.*, whether or not they were Holocene ["modern"] in age or older, being early to late Pleistocene). The age of these sediments is important in determining if they should be accorded a low paleontological sensitivity (Holocene) or a high paleontological sensitivity (Pleistocene).

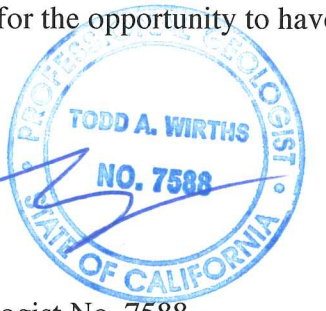
Paleontological Sensitivity: A paleontological sensitivity map generated by the Riverside County Land Information System on December 17, 2014 (Attachment 4) ranks the entire project area as having a High Potential/Sensitivity (High B), which is "based on [the presence of] geologic formations or mappable rock units that contain fossilized body elements, and trace fossils such as tracks, nests and eggs. These fossils occur on or below the surface." The category "High B" indicates that fossils are likely to be encountered at or below four feet of depth, and may be impacted during excavation by construction activities. Alluvial sediments with a High Potential/Sensitivity (High B) to yield nonrenewable paleontological resources (*i.e.*, fossils) are shown in amber tint on Attachment 4.

Results: Based on a paleontological literature review and a collections and records search conducted by the Geological Sciences Division of the San Bernardino County Museum in Redlands, California for the project site (E. G. Scott, March 12, 2015, attached), older Pleistocene alluvial fan deposits ($Qvof_a$ on Attachment 3) have a high potential to contain significant nonrenewable paleontological resources (*i.e.*, fossils), and were thus assigned a "high paleontological resource sensitivity" by Scott (2015). Similar older Pleistocene sediments throughout the lowland (valley) areas of western Riverside County and the Inland Empire have been reported to yield significant fossils of extinct terrestrial mammals from the last Ice Age (see references in Scott, 2015), such as mammoths, mastodons, giant ground sloths, dire wolves, short-faced bears, saber-toothed cats, large and small horses, camels, and bison. The collections and records search report (Scott, 2015), however, did not identify any known fossil localities within the boundaries of the proposed Moreno Valley Logistics Center site, nor within at least one mile in any direction of the project site. The closest recorded fossil locality may be that reported by R. E. Reynolds (2004) from a location five miles northeast of the current project site. The only fossil recovered there was a limb bone of an unidentified species of *Bison* sp. In French Valley and Menifee Valley, vertebrate fossils have been found at depths between 14 and 15 feet below ground level (R. R. Reynolds and R. L. Reynolds, 1991).

Recommendations: Because of the High paleontological sensitivity (High B) assigned to the lower Pleistocene older alluvial fan deposits across the site, full-time paleontological monitoring of mass grading and excavation (utility trenching, etc.) activities in areas so mapped should be required in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. The age of these sediments is more important in determining the need for paleontological monitoring than the possible depth of their current burial. The mitigation program should be consistent with the provisions of the California Environmental Quality Act (CEQA), regulations currently implemented by the City of Moreno Valley (as the lead agency for the project), the County of Riverside, and the proposed guidelines of the Society of Vertebrate Paleontology (see page 5, following).

If you have any questions concerning this evaluation, please feel free to contact us at our Poway address. Thank you for the opportunity to have provided paleontological services for this project.

Sincerely,



Todd Wirths, M.S., P.G.
California Professional Geologist No. 7588

George L. Kennedy, Ph.D.
Senior Paleontologist

Attachments: Index maps, geologic map, paleontological sensitivity map, SBCM records search report, geotechnical boring logs

References:

Morton, D. M. 2003. Preliminary geologic map of the Perris 7.5' quadrangle, Riverside County, California: U. S. Geological Survey Open-File Report 03-270, scale 1:24,000.

Morton, D. M., and Matti, J. C. 2001. Preliminary geologic map of the Sunnymead 7.5' quadrangle, Riverside County, California: U. S. Geological Survey Open-File Report 01-450, scale 1:24,000.

Reynolds, R. E. 2004. Paleontological resource investigation, Moreno Highlands fault investigation. *In* unpublished geologic report prepared by Leighton & Associates, 2004, Preliminary fault investigation, Tentative Tract Map No. 32501, Moreno Highlands, City of Moreno Valley, Project No. 111061-1031.

Reynolds, R. E., and Reynolds, R. L. 1991. The Pleistocene beneath our feet: Near-surface Pleistocene fossils from inland southern California basins. San Bernardino County Museum Association Quarterly, 38(3&4): 41-43.

Trazo, R. G., and Seminara, J. A. 2014. Geotechnical investigation, proposed Moreno Valley Logistics Center, SWC Krameria Avenue and Indian Street, Moreno Valley, California. Unpublished geotechnical report prepared for ProLogis, Ontario, California, by Southern California Geotechnical, Inc., Yorba Linda, California.

Paleontological Mitigation Program
Moreno Valley Logistics Center Project

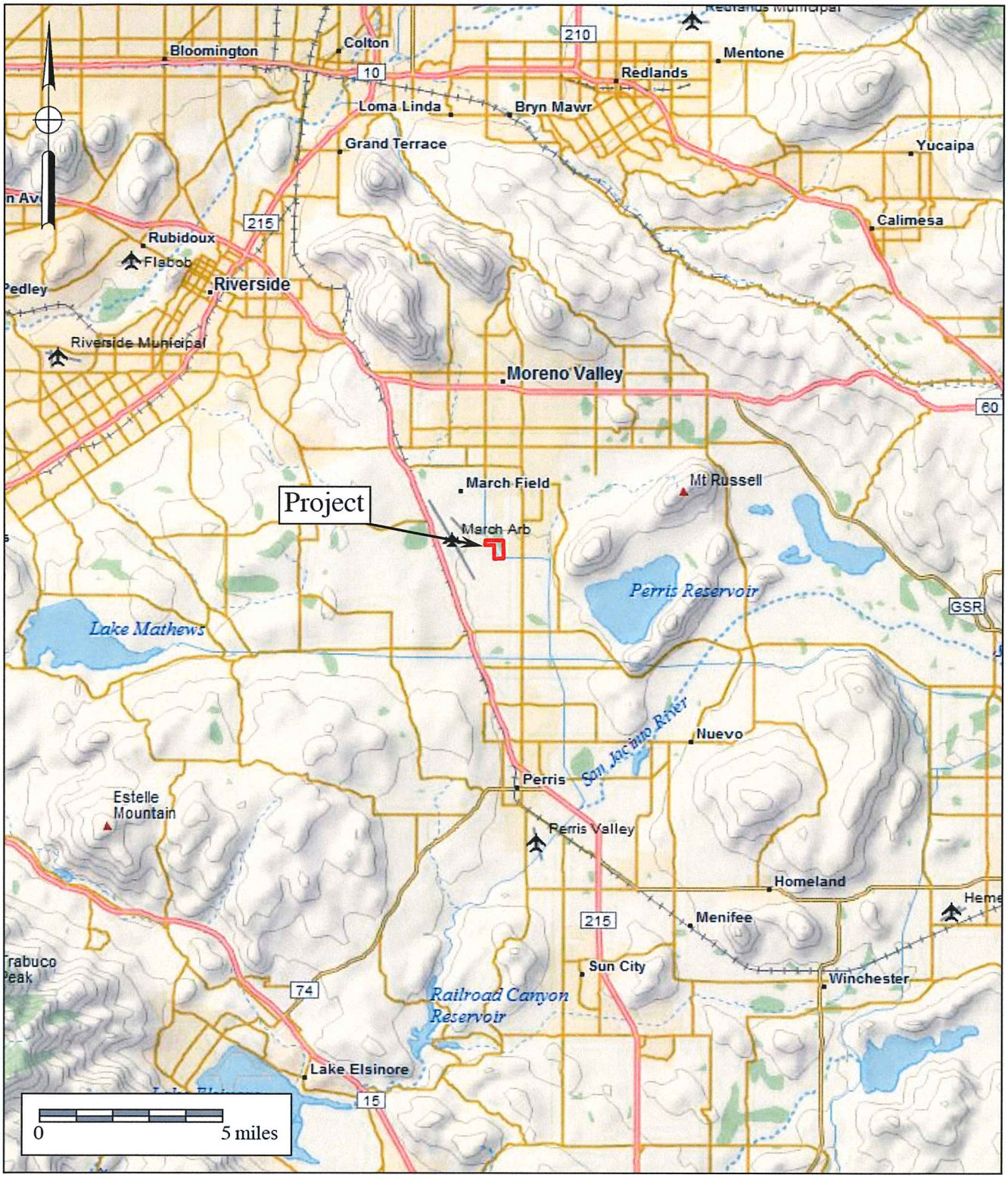
(APNs 316-100-028, -030, -048, -051, and -052)

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time monitoring will be conducted in areas of grading or excavation in undisturbed, very old alluvial fan sediments ($Qvof_a$ on Attachment 3). Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.

2. Preparation of recovered specimens to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.

3. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Western Science Center Museum, 2345 Searl Parkway, Hemet, California 92543). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.

4. Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location. The report, when submitted to the appropriate lead agency (City of Moreno Valley), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.

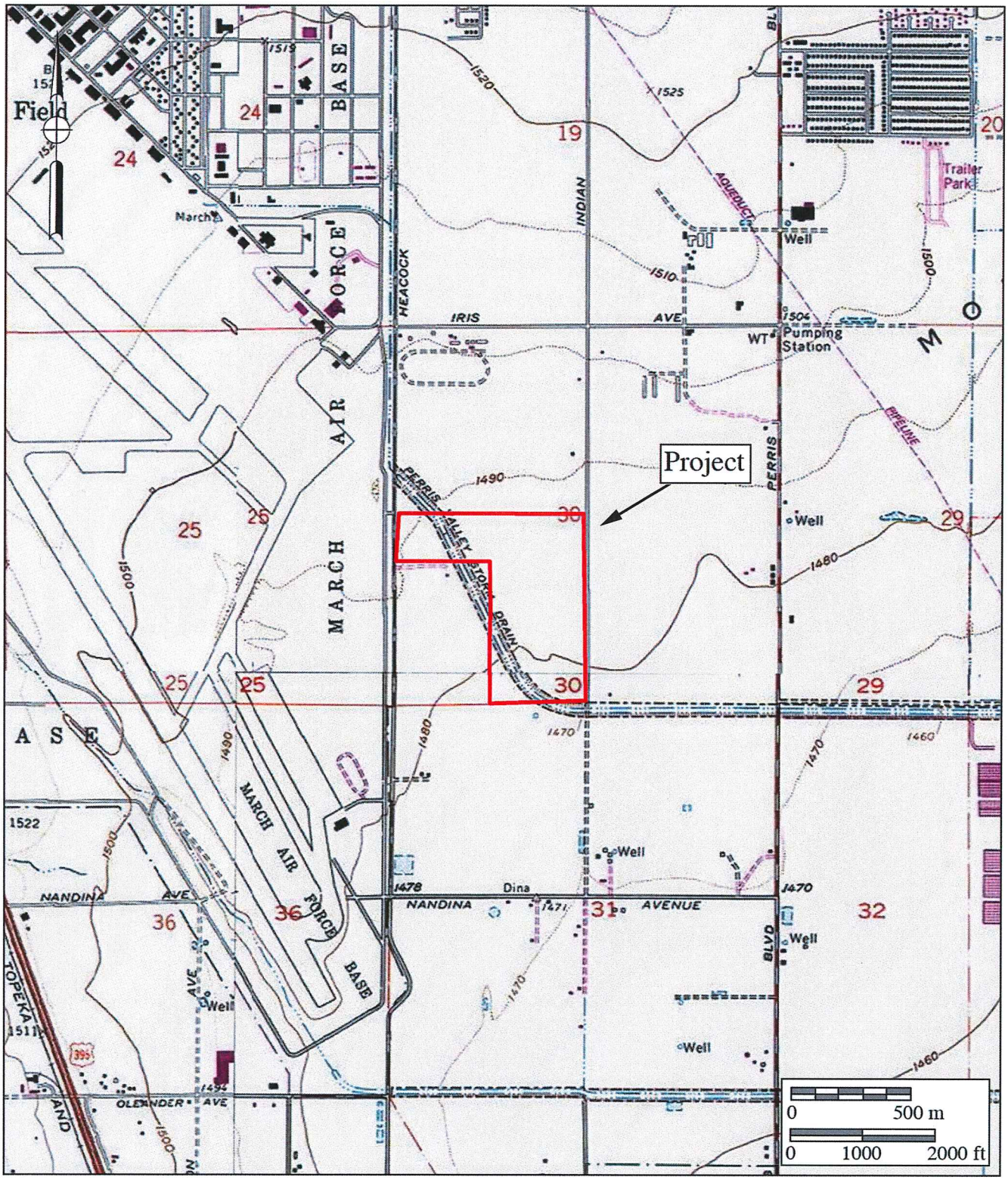


Attachment 1

General Location Map

The Moreno Valley Logistics Center Project

DeLorme (1:250,000)

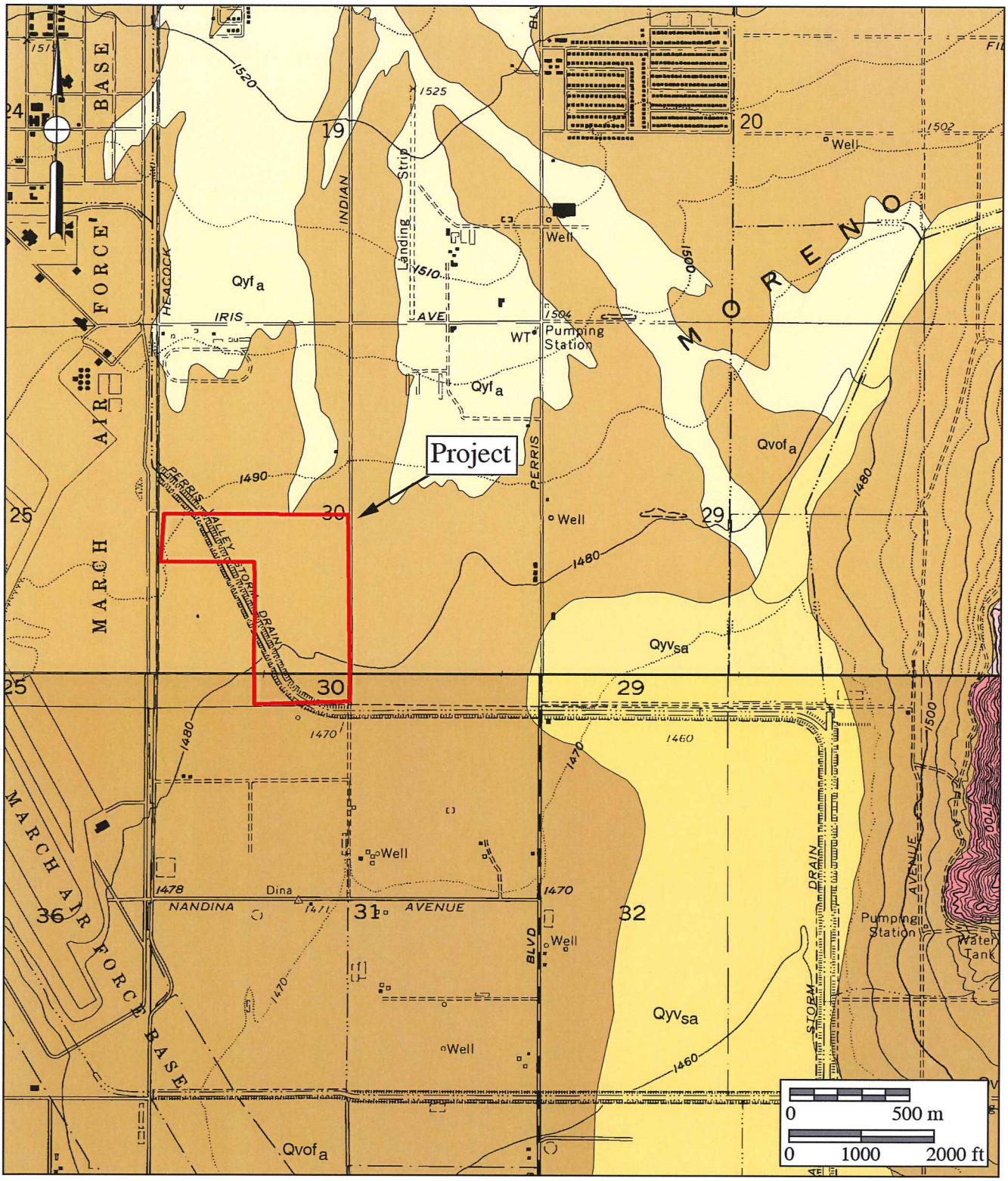


Attachment 2

Project Location Map

The Moreno Valley Logistics Center Project

USGS *Riverside East, Sunnymead, Steele Peak,* and *Perris* Quadrangles (7.5-minute series)



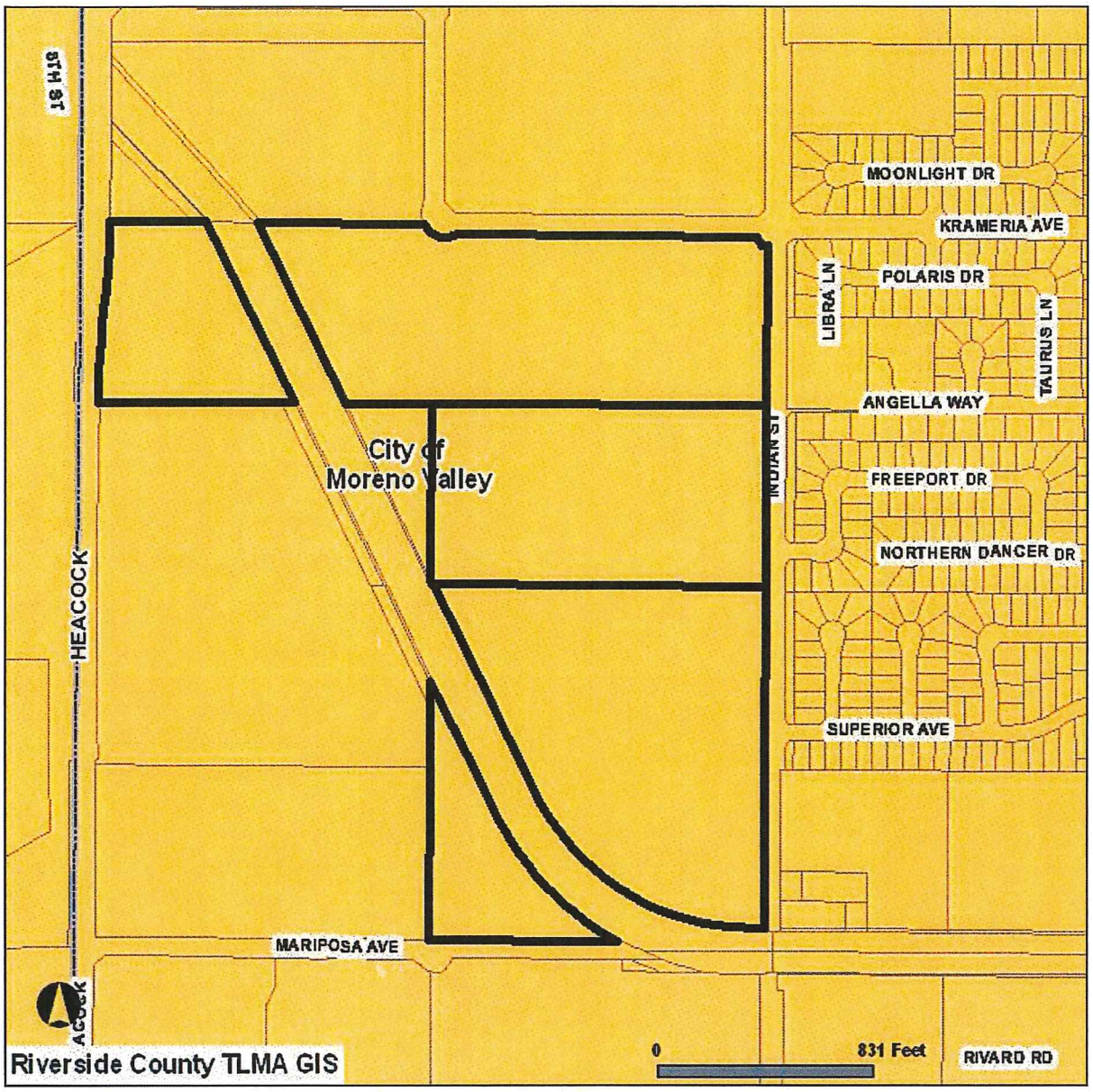
Attachment 3

Geologic Map

The Moreno Valley Logistics Center Project

Geology after U.S. Geological Survey

RIVERSIDE COUNTY GIS



Selected parcel(s):
316-100-028 316-100-030 316-100-048 316-100-051 316-100-052

PALEONTOLOGICAL SENSITIVITY

SELECTED PARCEL
PARCELS
INTERSTATES
HIGHWAYS
CITY
HIGH POTENTIAL/SENSITIVITY (HIGH B)

Attachment 4

Paleontological Sensitivity Map

The Moreno Valley Logistics Center Project

2024 Orange Tree Lane, Redlands, California 92374 | Phone: 909.798.8608
www.SBCounty.gov

SAN BERNARDINO COUNTY

Museum

Leonard X. Hernandez
Interim Museum Director

12 March 2015

Brian F. Smith and Associates
attn: George L. Kennedy, Ph.D., Senior Paleontologist
14010 Poway Road, Suite A
Poway, CA 92064

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, MORENO VALLEY LOGISTICS CENTER, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA**

Dear Dr. Kennedy,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named project in the City of Moreno Valley, Riverside County, California. Specifically, the proposed study area is located in the southwestern quadrant of section 30, Township 3 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California and the Sunnymead, California 7.5' United States Geological Survey topographic quadrangle maps (1967 editions, photorevised 1973 and 1980, respectively).

Previous mapping of the proposed property (Rogers, 1965; Morton and Matti, 2001; Morton, 2003) indicates that the study area is situated entirely upon surface exposures of early Pleistocene alluvial fan deposits (= unit **$Qvof_a$**). These Pleistocene fan deposits may have high paleontologic sensitivity, depending upon their lithology. Pleistocene alluvium elsewhere throughout Riverside County and the Inland Empire has repeatedly been reported to yield significant fossils of extinct animals from the Ice Age (Jefferson, 1991; Reynolds, 1991; Anderson and others, 2002; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison (Jefferson, 1991; Reynolds, 1991; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010), as well as plant macro- and microfossils (Anderson and others, 2002). If not previously disturbed by development, and depending upon the lithology exhibited, these sediments have high potential to contain significant nonrenewable paleontologic resources.

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously-recorded fossil resource

localities from Pleistocene older alluvium are present within the boundaries of the proposed development property, nor from at least within one mile in any direction.

Recommendations

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the proposed study area is situated upon Pleistocene older alluvial deposits that, if not previously disturbed by development and depending upon their lithology, have high potential to contain paleontologic resources. Excavation in this older alluvium therefore has high potential to impact paleontologic resources. A qualified vertebrate paleontologist must develop a program to mitigate impacts to nonrenewable paleontologic resources. This mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of Riverside. This program should include, but not be limited to:

1. Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Areas requiring monitoring include all previously-undisturbed Pleistocene older alluvial sediments present, at the surface or at depth, within the boundaries of the property. Paleontologic monitors should be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced or eliminated if the potentially-fossiliferous units described herein are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.

2. Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils are essential in order to fully mitigate adverse impacts to the resources (Scott and others, 2004).

3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not complete until such curation into an established, accredited museum repository has been fully completed and documented.

4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum

repository, would signify completion of the program to mitigate impacts to paleontologic resources.

References

Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott, 2002. Paleoecology of a Middle Wisconsin deposit from southern California. Quaternary Research 58(3): 310-317.

Jefferson, G.T., 1991. A catalogue of late Quaternary vertebrates from California: Part Two, mammals. Natural History Museum of Los Angeles County Technical Reports, No. 7.

Morton, D.M., 2003. Preliminary geologic map of the Perris 7.5' quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 03-270. Digital preparation by K.R. Bovard and R.M. Alvarez.

Morton, D.M. and J.C. Matti, 2001. Geologic map of the Sunnymead 7.5' quadrangle, Riverside County, California, version 1.0. United States Geological Survey Open-File Report 01-450. Digital preparation by V.M. Diep and U. Edwards-Howells.

Reynolds, S.F.B. and R.L. Reynolds, 1991. The Pleistocene beneath our feet: near-surface Pleistocene fossils in inland southern California basins. *In* M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler (eds.), Inland Southern California: the last 70 million years. Redlands: San Bernardino County Museum Special Publication 38(3&4): 41-43.

Rogers, T.H., 1965. Geologic map of California, Santa Ana sheet. California Division of Mines and Geology. Scale 1:250,000.

Scott, E., 2010. Extinctions, scenarios, and assumptions: changes in latest Pleistocene large herbivore abundance and distribution in western North America. *In* E. Scott and G. McDonald (eds.), Faunal dynamics and extinction in the Quaternary: Papers honoring Ernest L. Lundelius, Jr. Quaternary International 217: 225-239.

Scott, E. and S.M. Cox, 2008. Late Pleistocene distribution of *Bison* (Mammalia; Artiodactyla) in the Mojave Desert of southern California and Nevada. *In* X Wang and L.G. Barnes (eds.), Geology and Vertebrate Paleontology of Western and Southern North America, Contributions in Honor of David P. Whistler. Natural History Museum of Los Angeles County Science Series No. 41, p. 359 - 382.

Scott, E. and K. Springer, 2003. CEQA and fossil preservation in southern California. The Environmental Monitor, Fall 2003, p. 4-10, 17.

Scott, E., K. Springer and J.C. Sagebiel, 2004. Vertebrate paleontology in the Mojave Desert: the continuing importance of "follow-through" in preserving paleontologic resources. *In* M.W. Allen and J. Reed (eds.) The human journey and ancient life in California's deserts: Proceedings from the 2001 Millennium Conference. Ridgecrest: Maturango Museum Publication No. 15, p. 65-70.

Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2009. The Diamond Valley Lake local fauna: late Pleistocene vertebrates from inland southern California. *In* L.B. Albright III (ed.), Papers on geology, vertebrate paleontology, and biostratigraphy in honor of Michael O. Woodburne. Museum of Northern Arizona Bulletin 65:217-235.

Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2010. Late Pleistocene large mammal faunal dynamics from inland southern California: the Diamond Valley Lake local fauna. *In* E. Scott and G. McDonald (eds.), Faunal dynamics and extinction in the Quaternary: papers honoring Ernest L. Lundelius, Jr. Quaternary International 217: 256-265.

Please do not hesitate to contact us with any further questions you may have.

Sincerely,

Eric Scott, Curator of Paleontology
Division of Geological Sciences
San Bernardino County Museum

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-1

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		12			ALLUVIUM: Brown Silty fine Sand, trace medium Sand, trace to little Clay, slightly porous, loose to medium dense-dry to damp		3					
5		9					5					
		15			Brown Clayey fine Sand, trace Silt, medium dense-damp to moist		9					
		21	3.5		Dark Brown fine Sandy Clay to Clayey fine Sand, medium dense to very stiff-moist		13					
10												
		29	3.5				11					
15					Brown Silty fine to medium Sand, medium dense-damp to moist		7					
		17			Brown fine Sandy Silt, little Clay, stiff to very stiff-moist to very moist		19					
20												
		13					17					
25					Boring Terminated at 25'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-1

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. B-2

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		26			ALLUVIUM: Brown Silty fine Sand, trace medium Sand, medium dense-dry to damp	105	2					
		11			Brown Silty fine to medium Sand, loose-dry to damp	108	3					
5		38				123	3					
					Brown Clayey fine Sand, little to some Silt, trace medium Sand, dense-damp							
		26	4.5+		Dark Brown fine Sandy Clay, trace to little Silt, slightly porous, very stiff-damp to moist	122	9					
		26	4.5+			115	19					
10												
		25	4.5+		@ 13½ to 15 feet, trace calcareous veining		14					
15												
					Dark Brown Silty fine Sand, little to some Clay, slightly porous, medium dense-damp to moist							
		16					8					
20												
					Brown Clayey fine Sand, little Silt, medium dense-moist							
		20					12					
25												
					Dark Brown Silty fine Sand, little to some Clay, medium dense-moist							
		23					11					
30					Boring Terminated at 30'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-2

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-3

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		23			ALLUVIUM: Brown Silty fine Sand, trace Clay, medium dense-dry to damp	88	2					
					Dark Brown Clayey Silt, little to some fine Sand, slightly porous, stiff-dry to damp							
		15			Brown Clayey fine Sand, little to some Silt, trace calcareous veining, medium dense-damp to moist	105	7					
5		30				113	7					
		18			Dark Brown Silty fine to medium Sand, trace to little Clay, medium dense-damp to moist	111	4					
		33				130	7					
10												
					Brown Clayey fine Sand, medium dense-damp to moist							
		29					8					
15					Boring Terminated at 15'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-3

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-4

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		26	4.5+		ALLUVIUM: Dark Brown Silty Clay, trace calcareous veining, very stiff-dry to damp		8					EI = 66 @ 0 to 5 feet
		15	3.0		Brown Clayey Silt, little fine Sand, trace calcareous veining, stiff to very stiff-damp to moist		13					
5		14			Dark Brown Silty fine Sand, little Clay, medium dense-damp to moist		10					
		24			Dark Brown Clayey fine Sand, little to some Silt, medium dense-damp to moist		6					
10												
		24			Dark Brown fine to medium Sand, trace Silt, medium dense-damp to moist		10 7					
15												
		37	4.5+		Brown Silty Clay, hard-damp		10					
20					Boring Terminated at 20'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-4

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-5

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		16			ALLUVIUM: Brown Silty fine to medium Sand, medium dense-dry to damp		2					
		8			Brown fine to medium Sand, trace Silt, trace fine Gravel, loose-dry to damp		2					
5		20	4.25		Dark Brown to Gray Brown Silty Clay, trace to little fine Sand, slightly porous, very stiff-damp to moist		10					
		25	4.5+		Dark Brown Silty Clay, trace fine Sand, very stiff-damp to moist		11					
10												
		27	4.5+				9					
15												
		19	3.5		Brown Silty fine Sand, little to some Clay, medium dense-damp to moist		9					
20					Boring Terminated at 20'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-5

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-6

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		26			ALLUVIUM: Brown Silty fine Sand to fine Sandy Silt, medium dense-dry to damp	111	3					
		32				102	3					
5		54			Brown Clayey Silt, trace fine Sand, trace calcareous veining, hard-dry to damp	102	6					
		55	1.5			106	5					
					Dark Brown Silty Clay, hard-damp							
		78			Dark Brown Clayey fine Sand to fine Sandy Clay, little to some Silt, very dense-damp	111	5					
10												
					Dark Brown to Red Brown fine Sandy Clay, trace Silt, very stiff-damp to moist							
		22	3.75				10					
15												
					Dark Brown fine to medium Sand, trace Silt, slightly cemented, medium dense-damp							
		40					6					
20					Brown Silty fine Sand, little Clay, meidum dense-damp to moist		10					
					Boring Terminated at 20'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-6

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-7

JOB NO.: 14G160 | DRILLING DATE: 6/24/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		22			ALLUVIUM: Brown Silty fine Sand, trace to little Clay, medium dense-dry to damp		4					
		21			Brown fine Sandy Silt, trace Clay, trace calcareous veining, medium dense-dry to damp		6					
5					Boring Terminated at 5'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-7

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-8

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		62			ALLUVIUM: Brown Silty fine Sand, little Clay, very dense-dry to damp		2					
		35	4.5+		Gray Brown to Brown Clayey fine Sand to fine Sandy Clay, trace to little Silt, trace calcareous veining, very stiff to medium dense to dense-damp		6					
5		25	4.5+				6					
		28	2.0 4.5+				7 11					
10					Dark Brown to Gray Brown Silty Clay, trace fine Sand, very stiff-damp to moist							
		23	3.0		Gray Brown fine Sandy Clay, trace Silt, very stiff-moist		13					
15												
		23			Gray Brown Silty fine Sand, trace Silt, trace medium Sand, medium dense-damp to moist		8					
20					Boring Terminated at 20'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-8

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-9

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		31			ALLUVIUM: Dark Brown Clayey fine Sand, little Silt, slightly porous, medium dense-dry to damp	114	2					
		43			Brown Silty fine Sand, trace to little Clay, medium dense-damp	110	3					
5		33			Brown fine to medium Sand, trace Silt, trace Clay, medium dense-damp	107	3					
		56	4.5+		Brown Clayey fine Sand to fine Sandy Clay, little Silt, trace medium Sand, medium dense-damp	118	6					
		49	4.5+		Brown to Red Brown fine Sandy Clay, trace Silt, hard-damp to moist	116	11					
10												
		32			Red Brown Clayey fine Sand, trace Silt, medium dense-moist		12					
15					Boring Terminated at 15'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-9

SOUTHERN CALIFORNIA GEOTECHNICAL

BORING NO. B-10

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		31	4.5+		ALLUVIUM: Dark Brown Clayey Silt, trace to little fine Sand, hard-dry to damp		4					EI = 33 @ 0 to 5 feet
		20			Brown Silty fine Sand, little to some Silt, medium dense-damp to moist		10					
5		27					11					
		38			Brown Silty fine Sand, little Clay, dense-damp to moist		9					
10												
		20	4.5+		Brown to Red Brown Silty Clay, trace to little fine Sand, trace calcareous veining, very stiff-moist		13					
15												
		19	3.0		Brown fine Sandy Clay, trace to little Silt, very stiff-moist		14					
20												
		46	4.5+		Dark Brown fine Sandy Clay, hard-moist		13					
25					Boring Terminated at 25'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-10

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-11

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
					ALLUVIUM: Brown Silty fine Sand, trace Clay, medium dense-dry to damp							
		31				110	4					
					Brown fine Sandy Clay, trace to little Silt, trace calcareous veining, very stiff to hard-damp							
		49	4.5+			114	9					
5		33	4.5+		Brown Clayey Silt, trace fine Sand, very stiff-damp	108	8					
		43	4.5+			116	8					
					Brown Silty fine Sand, little to some Clay, trace medium Sand, medium dense-damp							
10		36				117	5					
		31					6					
15					Brown to Gray Brown Silty fine to medium Sand, trace Silt, trace Clay, slightly cemented, dense-moist		14					
					Brown to Red Brown Clayey fine Sand, little Silt, medium dense-damp to moist							
		25					10					
20					Brown Silty fine Sand, trace Clay, medium dense-damp to moist		9					
					Dark Brown Clayey fine to medium Sand, trace Silt, medium dense-damp to moist							
		23					9					
25												
		26					8					
30					Boring Terminated at 30'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-11

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-12

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		21			ALLUVIUM: Dark Brown to Brown Silty fine Sand, little Clay, trace medium Sand, medium dense-dry to damp	102	4					
		12				107	5					
5		25				115	7					
		55	4.5+		Dark Brown fine Sandy Clay, trace Silt, slightly cemented, very stiff to hard-damp to moist	118	13					
		24	3.75			107	25					
10					Brown Silty Clay, trace fine Sand, very stiff-moist to very moist							
					Brown Clayey fine Sand, little to some Silt, medium dense-moist		12					
		15			Brown Silty fine Sand, trace medium Sand, trace Clay, medium dense-damp to moist		8					
15												
					Brown fine Sandy Clay, trace Silt, very stiff-damp to moist							
		18	3.5				12					
20												
					Brown fine to medium Sand, little to some Clay, trace Silt, medium dense-moist		11					
		25										
25			4.5+		Gray Brown Silty Clay, trace fine Sand, very stiff-moist		15					
					Boring Terminated at 25'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG **PLATE B-12**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-13

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		26			ALLUVIUM: Dark Brown Silty fine Sand, medium dense-dry to damp		3					EI = 0 @ 0 to 5 feet
		24	2.5		Brown Clayey Silt, trace to little Clay, very stiff-damp to moist		8					
5		16	2.5		Dark Brown Silty Clay, trace fine Sand, very stiff-damp to moist		10					
		14	3.0				12					
10					Dark Brown Clayey fine to medium Sand, trace Silt, stiff-damp to moist							
		21					9					
15					Boring Terminated at 15'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG **PLATE B-13**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-14

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		19			ALLUVIUM: Dark Brown Silty fine Sand, trace to little Clay, loose to medium dense-dry to damp	107	3					
		9				103	4					
5		20			Brown Clayey fine Sand, trace Silt, medium dense-moist	106	16					
		46	4.5+		Brown fine Sandy Clay, little Silt, very stiff-damp to moist	119	8					
		16			Gray Brown Silty fine Sand, trace Clay, medium dense-damp to moist	110	8					
10												
		15			Brown to Gray Brown fine Sandy Silt, trace Clay, stiff to very stiff-moist		12					
15												
		28					16					
20					Boring Terminated at 20'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-14

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-15

JOB NO.: 14G160 | DRILLING DATE: 6/25/14 | WATER DEPTH: Dry
PROJECT: Prop. Moreno Valley Logistics Center | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 18 feet
LOCATION: Moreno Valley, California | LOGGED BY: Eric Torres | READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	UNCONFINED SHEAR (TSF)	COMMENTS
		30	4.5+		ALLUVIUM: Brown fine Sandy Clay, little to some Silt, trace calcareous veining, very stiff to hard-dry to damp		6					
		24			Light Brown fine Sandy Silt, medium dense-damp to moist		8					
5					Boring Terminated at 5'							

TBL 14G160.GPJ SOCALGEO.GDT 7/14/14

TEST BORING LOG

PLATE B-15